REMARKS

The examiner removed the objections to the drawings and the disclosure and indicated that the previous 102 and 103 rejections were overcome.

The examiner rejected Claims 16 and 17 under 35 U.S.C. 102(e), as being anticipated by Gore et al (US 2004/0202904). The examiner stated:

> **The Gore reference discloses a method of operating a fuel cell system comprising disposing a fuel cartridge "306" into a compartment of an electrical apparatus "100" such that a portion of a wall "336" of a housing "330" that is comprised of a metal material is placed in thermal communication with a heating element "308" in the electrical apparatus that enables a vapor phase of an oxidizable fuel compound "370" in the housing to egress from the cartridge (See paragraphs [0028],[0061],[0062],[0069]).**

Claims 16 and 17 are allowable over Gore et al (US 2004/0202904). Claim 16 recites … disposing a fuel cartridge into a compartment of an electronic device such that a portion of a wall of a housing of the fuel cartridge that is comprised of a thermally conductive material is placed in thermal communication with a heat generating component of the electronic device … . Claim 16 requires that the action of disposing provides the thermally conductive material of the fuel cartridge in thermal communication with a component of the electronic device. Gore neither describes nor suggests these features.

Rather, Gore is directed to a different application, namely to supply hydrogen gas to a PEM (Proton Exchange Membrane) fuel cell. Gore teaches a fuel cartridge enclosing a fuel strip and a heater. However, the heater does not meet the limitation of "a heat generating component of the electronic device," as called for in claim 16 at least because the heater in Gore is inside the fuel cartridge. Moreover, Gore does not describe the action of disposing, since in Gore the heater is built into the cartridge whereas claim 16 requires the action of "disposing a fuel cartridge into a compartment of an electronic device such that a portion of a wall of a housing … is placed in thermal communication with a heat generating component of the electronic device."

Accordingly, Claim 16 is allowable over Gore.

The examiner rejected Claims 1-15 under 35 U.S.C. 103(a) as being unpatentable over Gore et al (US 2004/0202904) in view of Hockaday et al (US 2002/0182459).

The examiner also rejected Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gore et al (US 2004/0202904) in view of Hockaday et al (US 2002/0182459). The examiner stated:

> **The Gore reference discloses a fuel cartridge "306" comprising: a housing "330" having a top wall "336" being comprised of a thermally conductive material such as aluminum metal; gas vents "338" that are supported by the top wall of the housing; and side walls "332" that are comprised of a thermally insulating material such as plastic wherein the cartridge contains a fuel compound "370" (See paragraphs [0061],[0062],[0069]). However, Gore et al does not expressly teach a surface area enhanced planar vaporization membrane residing in the fuel cartridge; a liquid source of fuel that is methanol; and a portion of a wall of the housing being comprised of a thermally conductive material that sinks heat to enhance a delivery of methanol in a vapor phase across the membrane. The Hockaday reference discloses a fuel container "7" comprising a selectively permeable membrane "2" and a fuel that is methanol (See paragraph [0006]). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Gore fuel cartridge to include a surface area enhanced planar vaporization membrane residing in the fuel cartridge; a liquid source of fuel that is methanol; and a portion of a wall of the housing being comprised of a thermally conductive material that sinks heat to enhance a delivery of methanol in a vapor phase across the membrane in order to utilize a safe and convenient source of hydrogen fuel for fuel cells at a low cost especially in portable power applications.).**

Applicant's claims are allowable over Gore et al (US 2004/0202904) in view of Hockaday et al (US 2002/0182459). Claim 1 for instance recites a container that supplies a source of fuel to a direct methanol fuel cell. Hockaday '459 is directed to a different application, namely to supply hydrogen gas to a PEM (Proton Exchange Membrane) fuel cell, the same type of cell taught by Gore, but different from the type of cell mentioned in claim 1.

Claim 1 includes the limitation of a housing… having at least a portion of a wall of the housing being comprised of a thermally conductive material … and a surface area enhanced planar vaporization membrane residing in the container. Neither Gore nor Hockaday '459 taken separately or in combination describes or suggests the combination of these features.

Gore, discusses:

[0028] The electrical apparatus 100 also includes a fuel cartridge 106. The fuel cartridge 106 can be defined by any suitable embodiment of fuel cartridge in accordance with the present invention. Fuel cartridges of the present invention are respectively described in particular detail hereafter. As depicted in FIG. 1, the fuel cartridge 106 includes an electric heating element (i.e., electric heater) 108 and a film strip 110. The film strip 110 supports a fuel compound (not shown in FIG. 1) containing hydrogen. The fuel cartridge 106 is generally configured to generate and provide the hydrogen fuel H2 to the fuel cell 102, by way of any suitable fluid coupling there between.

Neither the construction nor the materials disclosed by Gore meets the limitations of … a surface area enhanced planar vaporization membrane residing in the container. While, the examiner admits that Gore does not teach: "a surface area enhanced planar vaporization membrane residing in the container," the examiner maintains that Gore teaches the claimed: "at least a portion of a wall of the housing being comprised of a thermally conductive material … ."

The examiner relies on Hockaday to teach the surface area enhanced planar vaporization membrane residing in the container. Applicant disagrees. Hockaday '459 provides tank 7, depicted and described in Figure 1 suggest a housing… having at least a portion of a wall of the housing being comprised of a thermally conductive material. The examiner argues that Hockaday '459 teaches: "… a housing "7" containing and in direct contact with a liquid source of an oxidizable fuel having at least a portion of the wall of the housing being comprised of a thermally conductive material that is a metal coating." Applicant disagrees.

Hockaday '459 does not describe the features of the container, as argued of record.

The examiner argues that separating membrane 2 disclosed in Hockaday '459 corresponds to the feature "a surface area enhanced planar vaporization membrane," which Applicant did not concede in the prior response and which Applicant now contends is not disclosed by Hockaday. Hockaday describes membrane 2 as:

The two ampoules 1, 3 are separated by a selectively permeable membrane 2. This membrane 2 can be constructed of a fiberglass mat such as Freudenburg Eglass mat T-1785 (Freudenburg Non-Wovens Ltd., 221 Jackson St., Lowell, Mass. 01852) impregnated with silicone rubber adhesive (GE silicones RTV 118) and compressed between low density polyethylene sheets. This results in strong silicone rubber membranes that are 25 to 200 microns thick. The membrane is held in a gas tight frame of the container 7 separating the two reactant ampoules 1 and 3.

Obviously, the membrane 2 of Hockaday is neither a surface area enhanced membrane, nor a surface area enhanced planar vaporization membrane.

It is also clear that there is not any basis from any combination of Gore and Hockaday '459 to arrange the surface area enhanced planar vaporization membrane in thermal communication with the portion of the wall comprised of the thermally conductive material. This follows since both references are dealing with a PEM fuel cell, not a direct methanol fuel cell, as in claim 1. Moreover, Gore does not teach to capture heat generated from components external to the fuel cartridge, but instead teaches to provide a heater element within the fuel cartridge. Accordingly, no combination of Gore taken with Hockaday would suggest to include the claimed "surface area enhanced planar vaporization membrane in thermal communication with the portion of the wall comprised of the thermally conductive material." Therefore, claim 1 is allowable over Gore taken with Hockaday '459.

Claims 2-9 serve to further distinguish over the references.

Claim 10 serves to further distinguish, since neither Gore nor Hockaday taken together or separately describe or suggest the desirability of a fuel cartridge, in which at least a portion of a wall of the housing is comprised of a thermally conductive material, enhances a delivery rate of methanol in a vapor phase across the membrane to deliver vapor at the egress port of the container. Neither Gore with Hockaday suggests the function of the thermally conductive material to sink heat and enhance delivery rate of methanol.

Claim 11 is distinct over Gore with Hockaday '459 since the references neither describes nor suggests a fuel cartridge ... comprising a housing ... containing and in direct contact with a liquid source of an oxidizable fuel and having at least a portion of a wall of the housing being comprised of a thermally conductive material as discussed above.

In addition, neither Gore with Hockaday in any combination describes or suggests: "with the at least a portion of a wall of the housing sinking heat generated from external components to enhance a delivery rate of methanol in a vapor phase to the egress port of the container."

Claim 13 distinguishes over Gore with Hockaday '459 since the reference neither describes nor suggests that remaining portions of walls of the cartridge are thermally insulating

or as in claim 14, where the at least a portion of a wall of the housing being comprised of a thermally conductive material is a portion of the housing of the container disposed adjacent the fuel egress port of the cartridge.

Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gore et al (US 2004/0202904) in view of Hockaday et al (US 2002/0182459).

Claim limits the method of claim 17 to use methanol as the oxidizing fuel, whereas claim 19, limits claim 16 to requiring that disposing a fuel cartridge permits heat that is generated by the component in the electronic device to increase a vapor pressure of the fuel in the housing to cause the fuel to egress from the cartridge, as a vapor.

Each of these claims distinguish over Gore et al (US 2004/0202904) in view of Hockaday et al (US 2002/0182459), since neither reference is specifically directed to methanol or to have methanol egress from the cartridge and neither reference teaches to use heat generated by the device rather than the built-in heater of Gore.

In addition, to a more simpler construction, the use of the heat generated by the electronic device can minimize heat-sinking requirements thus making the device and the cartridge simpler and less expensive than the combination provided by Gore and Hockaday.

Newly added claims 20-26 serve to further distinguish over the combination of Gore with Hockaday. Claim 20 for instance requires that the container of claim 1 "... is configured for a specific electronic device and the portion of the wall of the housing of the container is configured to be disposed adjacent a heating dissipating element of the electronic device." No combination of Gore with Hockaday would suggest this feature since no combination of these references suggests the desirability of capturing heat generated by the device itself. Claim 21 distinguishes the container of claim 1 by requiring that the container deliver methanol to the fuel egress port. Neither reference discloses this.

Claim 22 further distinguishes the container of claim 1 since the container is configured for a specific electronic device, the portion of the wall of the housing of the container is configured to be disposed adjacent a heating dissipating element of the electronic device, and the container delivers methanol to the fuel egress port.

Claim 23 further distinguishes the container of claim 11 since the fuel cartridge is configured for a specific electronic device, and wherein the portion of the wall of the housing of the container is configured to be disposed adjacent a heating dissipating element of the electronic device.

Neither reference describes nor would any combination suggest the desirability of the features of these claims, since Gore incorporates the heater inside the container.

Claim 24 distinguishes since no combination of these references suggests that the fuel cartridge delivers methanol to the fuel egress port.

Claim 25 likewise distinguishes the container of claim 11 since no combination of these references suggests the fuel cartridge is configured for a specific electronic device, the portion of the wall of the housing of the fuel cartridge is configured to be disposed adjacent a heating dissipating element of the electronic device, and the fuel cartridge delivers methanol to the fuel egress port, as discussed above.

Claim 26 adds the feature of "a surface area enhanced planar vaporization membrane residing in the container," to claim 11, and distinguishes for reason discussed above.

Please charge the Petition for Extension of Time fee of $120 to Deposit Account No. 06-1050. Please apply any other charges or credits to deposit account 06-1050.

Respectfully submitted,

Date: 3/30/09

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